Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

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June 22, 2009

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PUBLIC UTILITIES COMMISSION

The Honorable Chairman and Members of
the Hawaii Public Utilities Commission
Kekuanaoa Building, 1st Floor
465 South King Street
Honolulu, Hawaii 96813

Dear Commissioners:

Subject: Docket No. 2008-0274 – Decoupling Proceeding
HECO Companies' Responses to Information Requests

On June 5, 2009, the Commission issued additional information requests ("IRs") to the parties in this proceeding which were prepared by its consultant, the National Regulatory Research Institute. Enclosed for filing are responses to the IRs addressed to the HECO Companies, PUC-IR-39 through PUC-IR-46, and PUC-IR-49, which was addressed to all parties. The HECO Companies will file shortly an amended response to PUC-IR-14. The "HECO Companies" are Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc. and Maui Electric Company, Limited.

Very truly yours,

Enclosures

cc: Division of Consumer Advocacy
Hawaii Renewable Energy Alliance
Haiku Design and Analysis
Hawaii Holdings, LLC, dba First Wind Hawaii
Department of Business, Economic Development, and Tourism
Hawaii Solar Energy Association
Blue Planet Foundation

PUC-IR-39

Please confirm that HECO's responses to PUC-IRs 33 to 35 indicate that the cases without the proposed RAM (IRs 34 and 36) have a rate case in 2010 and 2012 rather than just one rate case with the RAM in 2011.

HECO Response:

The HECO Companies are filing a revised response to PUC-IR-14, which will also incorporate PUC-IR-27, 33 to 35, and the revenue per customer RAM. Please see revised PUC-IR-14 for:

- The rate case cycle under the following scenarios: (1) with RAM, (2) without RAM-same rate case cycle as with RAM, and (3) without RAM-more frequent rate case cycle,
- The return on average common equity for the following five scenarios: (1) with RAM, (2) without RAM-same rate case cycle as with RAM, (3) without RAM-more frequent rate case cycle, (4) revenue per customer RAM with reset (to each new rate case), and (5) revenue per customer RAM with no reset.

The original PUC-IR-14, 27, and 33 to 35 responses were based on the HECO Companies' January 30, 2009 proposal and rate case cycle assumptions, which have become dated. The revised PUC-IR-14 response consolidates PUC-IR-27, 33 to 35, and 39 to 42 so all the pertinent information is on the spreadsheet to facilitate analysis and discussion, and to reflect the current joint decoupling proposal filed jointly by the HECO Companies and the Consumer Advocate on March 30, 2009 in their *Joint Proposal on Decoupling and Statement of Position of the HECO Companies and the Consumer Advocate.*

However, in the revised response to PUC-IR-14, in the scenario without RAM, it is still assumed that HECO will have a rate case in 2010 and 2012 rather than just one rate case with the RAM in 2011.

PUC-IR-40

Please confirm that HECO's responses to PUC-IRs 33 to 35 indicate a higher average forecasted achieved ROE for 2010-2013 for the cases without the RAM (IRs 33 and 35) than with the RAM (IRs 32 and 34). How much of this difference is due to an extra rate case?

HECO Response:

The HECO Companies are filing a revised response to PUC-IR-14, which will also incorporate PUC-IR-27, 33 to 35, and the revenue per customer RAM. Please see revised PUC-IR-14 for:

- The rate case cycle under the following scenarios: (1) with RAM, (2) without RAM-same rate case cycle as with RAM, and (3) without RAM-more frequent rate case cycle,
- The return on average common equity for the following five scenarios: (1) with RAM, (2) without RAM-same rate case cycle as with RAM, (3) without RAM-more frequent rate case cycle, (4) revenue per customer RAM with reset (to each new rate case), and (5) revenue per customer RAM with no reset.

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In the revised PUC-IR-14 response, HECO's forecasted achieved 2010-2013 ROE results for the case with RAM is higher than the cases without RAM.

PUC-IR-41

The forecasted achieved ROE for HECO in the rate case years in the responses to PUC-IRs 33-35 are lower in the RAM case than in the cases without the RAM. Does this indicate that the Commission should authorize a lower ROE with a RAM than without a RAM? Please discuss quantitatively.

HECO Response:

The HECO Companies are filing a revised response to PUC-IR-14, which will also incorporate PUC-IR-27, 33 to 35, and the revenue per customer RAM. Please see revised PUC-IR-14 for:

- The rate case cycle under the following scenarios: (1) with RAM, (2) without RAM-same rate case cycle as with RAM, and (3) without RAM-more frequent rate case cycle,
- The return on average common equity for the following five scenarios: (1) with RAM, (2) without RAM-same rate case cycle as with RAM, (3) without RAM-more frequent rate case cycle, (4) revenue per customer RAM with reset (to each new rate case), and (5) revenue per customer RAM with no reset.

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In the revised response to PUC-IR-14, the HECO forecasted achieved ROE is higher in the rate case years with RAM than in the cases without RAM. Discussion regarding the impact of decoupling on the Companies' ROE may be found in the Companies' responses to Appendix 2 – Question #7 and PUC-IR-11.

PUC-IR-42

The forecasted achieved ROE in years 2011 and 2013 is about 20 basis points lower in the case without RPC than the cases with RPC. Is the 20 basis points a good estimate of the effect that customer growth has on the RPC without decoupling? If not, explain the basis for the 20 basis point difference.

HECO Response:

The HECO Companies are filing a revised response to PUC-IR-14, which will also incorporate PUC-IR-27, 33 to 35, and the revenue per customer RAM. Please see amended PUC-IR-14 for:

- The rate case cycle under the following scenarios: (1) with RAM, (2) without RAM-same rate case cycle as with RAM, and (3) without RAM-more frequent rate case cycle,
- The return on average common equity for the following five scenarios: (1) with RAM, (2) without RAM-same rate case cycle as with RAM, (3) without RAM-more frequent rate case cycle, (4) revenue per customer RAM with reset (to each new rate case), and (5) revenue per customer RAM with no reset.

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PUC-IR-43

For the period 2004 though 2008, please provide for each utility, annually:
1. The target heat rate used in ECAC along with supporting calculations;
2. The actual heat rate used in calculating the ECAC along with supporting calculations;
3. The amount of money that (a) the utility earned or (b) was credited to customers because of the heat rate adjustment through the ECAC; and
4. Any over or under recovery associated with a constant 2005 energy resource mix.

HECO Response:

1. The target heat rate used in ECAC is set upon approval of the base mix of fuel and purchased energy in the utility's last rate case with a final decision and order issued. The target heat rate is reset upon a final decision and order in the utility's next rate case. As included in the HECO Companies' response to PUC-IR-44, the current target heat rates are summarized in the table below.

	Target Sales Heat Rate, Btu/kWh-sales	Source	Effective Date
HECO	11,170	Test Year 1995 Rate Case (Docket No. 7766)	January 1, 1996
HECO	11,140	Test Year 2005 Rate Case (Docket No. 04-0113)	June 20, 2008
HELCO	14,629	Test Year 2000 Rate Case (Docket No. 99-0207)	February 15, 2001
MECO			
Maui Division	11,032	Test Year 1999 Rate Case (Docket No. 97-0346)	April 15, 1999
Lanai Division	10,678	Test Year 1999 Rate Case (Docket No. 97-0346)	April 15, 1999
Molokai Division	10,522	Test Year 1999 Rate Case (Docket No. 97-0346)	April 15, 1999

Final D&Os are pending for the HECO's 2007 test year rate case (Docket No. 2006-0386), HELCO's 2006 test year rate case (Docket No. 05-0315), and MECO's 2007 test year rate case (Docket No. 2006-0387) where target heat rates are proposed to be set by fuel type.

The supporting calculations for the current effective sales heat rates are shown in Attachment 1, page 1 (HECO-January 1, 1996), page 2 (HECO-From June 20, 2008 to present), page 3 (HELCO), page 4 (MECO-Maui Division), page 5 (MECO-Lanai Division), and page 6 (MECO-Molokai Division).

2. The target heat rate is used in calculating the monthly energy cost adjustment factor under the ECAC. At quarterly intervals, a calculation of fuel expenses is made based on the target heat rate and the actual mix of fuel used. As a quarterly reconciliation, the utility adjusts the monthly energy cost adjustment factor to recover the difference between the revenues collected under the ECAC and the sum of the target level of fuel expenses and the actual purchased energy expenses. If the actual heat rate is higher (worse) than the target, actual fuel expenses are higher than the target level, and the utility will not recover all of its fuel expenses incurred. If the actual heat rate is lower (better) than the target, actual fuel expenses are lower than the target level, and the utility will recover revenue greater than its fuel expenses incurred. The dollar value of the HECO Companies heat rate performance against target from 2004 through 2008 is attached as Attachment 2 (negative numbers indicate actual heat rates higher (worse) than target).
3. See the response to part 2 above.
4. The use of the 2005 test year resource mix in HECO's ECAC does not result in any over or under recovery of revenue. Please refer to HECO's response to PUC-IR-49.

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HECO-R-230
Docket No. 7766
Page 1 of 1

Hawaiian Electric Company, Inc.

1995 TEST YEAR FUEL EFFICIENCY

REBUTTAL TESTIMONY

Line			
	ENERGY		
1.	Company Generated Energy	4,233.2	Net Gwh
2.	Steam Generated Energy	4,230.5	Net Gwh
3.	Diesel Generated Energy	2.7	Net Gwh
4.	*Test Year Sales*	*6,812.9*	Gwh
	FUEL CONSUMPTION		
5.	Total Fuel Consumed	44,626,143	MBtu
6.	Steam Fuel Consumed	44,477,981	MBtu
7.	Diesel Fuel Consumed	148,162	MBtu
	HEAT RATE		
8.	Total Heat Rate	10,542	Btu/Kwh
9.	Steam Heat Rate	10,514	Btu/Kwh
10.	Diesel Heat Rate	54,811	Btu/Kwh
11.	HECO Gen. of Net System Input	58.64	Percent
12.	Sales Heat Rate	0.011170	MBtu/Kwh Sales[1]

[1] 44,626,143 mbtu / (6,812.9 gwh x 0.5864 x 1,000,000 kwh/gwh) = 0.011170 mbtu/kwh sales

Reference: HECO-RWP-220.

Hawaiian Electric Company, Inc.

TEST YEAR 2005 SALES FUEL EFFICIENCY

Line	Description	(A) Net Generation (MWh)	(B)[1] Fuel (Barrels)	(C) Fuel (MBtu)	(D) = (C) ÷ (A) * 1000 (D) Net Heat Rate (Btu/kWh)
1.	Steam	4,815,012	8,218,553	50,955,027	10,583
2.	Diesel - Waiau	6,465	27,658	162,075	25,070
3.	Diesel - CHP	(Treated Separately In the ECAF)			
4.	Total	4,821,477	8,246,211	51,117,102	10,602
	SALES PROVIDED BY COMPANY GENERATION				
5.	Test Year Sales	7,856,000			
6.	Company Generated	58.41%			
7.	Sales Provided by Company	4,588,428			
	SALES FUEL EFFICIENCY	Company Sales		Company MBtu Consumed	
8.	Company Sales and Fuel	4,588,428		51,117,102	
9.	Sales Heat Rate	0.011140			

[1] Steam's LSFO heat content is 6.2 MBtu/barrel
Diesel's heat content is 5.86 MBtu/barrel

H2000effBasecaseRebuttalrev8-00 xls Sheet "HELCO-RWP-408 P1"
8/21/00

Hawaii Electric Light Company, Inc.

TEST YEAR 2000 SALES FUEL EFFICIENCY
Rebuttal Testimony
Base Case-Revised

	Net Gen (MWH)	Fuel (BBL)	Fuel (MBTU)	Net Heat Rate (BTU/KWH)
Steam	213,531	457,177	2,880,217	13,489
Diesel	41,012	92,875	544,245	13,270
	254,543	550,052	3,424,462	13,453
Helco Hydro and Wind	21,129		284,256	13,453
Total Helco	275,672		3,708,718	13,453

SALES PROVIDED BY COMPANY GENERATION

935.8	GWH Sales		
27.09%	275.672 /	1017.592 =	net gen / net system input
253.5	GWH Sales Provided by Company Generation		

SALES FUEL EFFICIENCY

= MBTU ÷ (GWH Co. Generated Sales x 1,000,000)

= 3,708,718 ÷ 253,514,039

= 0.014629 MBTU / KWH Sales

NOTE: TOTALS MAY NOT ADD EXACTLY DUE TO ROUNDING.

eff.xls Sheet "maui shr"
7/27/98

Maui Electric Company, Ltd.
(Maui Division)

TEST YEAR 1999 SALES FUEL EFFICIENCY
Rebuttal Testimony

	Net Gen (MWH)	Fuel (BBL)	Fuel (MBTU)	Net Heat Rate (BTU/KWH)
Steam	239,177	528,441	3,329,177	13,919
Diesel	747,687	1,163,245	6,816,613	9,117
	986,864	1,691,686	10,145,790	10,281

SALES PROVIDED BY COMPANY GENERATION

1,002.1	GWH Sales
91.78%	= 986.9 / 1075.1 = net gen / net system input
919.7	GWH Sales Provided by Company Generation

SALES FUEL EFFICIENCY

= MBTU ÷ (GWH Co. Generated Sales x 1,000,000)

= 10,145,790 ÷ 919,677,129

= 0.011032 MBTU / KWH Sales

NOTE: TOTALS MAY NOT ADD EXACTLY DUE TO ROUNDING.

eff.xls Sheet "lanai shr"
7/27/98

Maui Electric Company, Ltd.
(Lanai Division)

TEST YEAR 1999 SALES FUEL EFFICIENCY

Rebuttal Testimony

	Net Gen (MWH)	Fuel (BBL)	Fuel (MBTU)	Net Heat Rate (BTU/KWH)
Steam				
Diesel	28,334	48,130	282,044	9,954
	28,334	48,130	282,044	9,954

SALES PROVIDED BY COMPANY GENERATION

26.4	GWH Sales
100.00%	= 28.3 / 28.3 = net gen / net system input
26.4	GWH Sales Provided by Company Generation

SALES FUEL EFFICIENCY

= MBTU ÷ (GWH Co. Generated Sales x 1,000,000)

= 282,044 ÷ 26,414,000

= 0.010678 MBTU / KWH Sales

NOTE: TOTALS MAY NOT ADD EXACTLY DUE TO ROUNDING.

eff.xls Sheet "molokai shr"
7/27/98

Maui Electric Company, Ltd.
(Molokai Division)

TEST YEAR 1999 SALES FUEL EFFICIENCY

Rebuttal Testimony

	Net Gen (MWH)	Fuel (BBL)	Fuel (MBTU)	Net Heat Rate (BTU/KWH)
Steam				
Diesel	38,606	62,692	367,375	9,516
	38,606	62,692	367,375	9,516

SALES PROVIDED BY COMPANY GENERATION

34.9	GWH Sales
100.00%	= 38.6 / 38.6 = net gen / net system input
34.9	GWH Sales Provided by Company Generation

SALES FUEL EFFICIENCY

= MBTU ÷ (GWH Co. Generated Sales x 1,000,000)

= 367,375 ÷ 34,914,900

= 0.010522 MBTU / KWH Sales

NOTE: TOTALS MAY NOT ADD EXACTLY DUE TO ROUNDING.

ECAC Heat Rate Comparison

	Fuel Expense ($000)		
	Actual	Recovered	Recv less Actual
HECO			
2004	327,376	327,550	174
2005	416,073	412,548	-3,525
2006	510,859	511,768	909
2007	518,937	514,037	-4,900
2008	856,990	863,763	6,773
Total	2,630,235	2,629,666	-569
HELCO			
2004	38,117	37,696	-421
2005	65,272	65,144	-128
2006	85,229	82,510	-2,719
2007	74,964	72,914	-2,050
2008	109,618	105,179	-4,439
Total	373,200	363,443	-9,757
MECO			
2004	110,044	109,021	-1,023
2005	153,832	151,889	-1,943
2006	180,232	176,181	-4,051
2007	173,130	176,003	2,873
2008	252,076	255,184	3,108
Total	1,175,615	1,169,708	-5,907
Total			
2004	475,537	474,267	-1,270
2005	635,177	629,581	-5,596
2006	776,320	770,459	-5,861
2007	767,031	762,954	-4,077
2008	1,218,684	1,224,126	5,442
Total	3,872,749	3,861,387	-11,362

Source: 4th quarter ECA reconcilation summary, lines 1 and 5.

PUC-IR-44

For each instance of renewable generation curtailment by the HECO Companies, provide:
1. The time and date of the curtailment; the marginal generation providing service and its marginal heat rate;
2. The last unit not dispatched and its marginal heat rate; and
3. The target heat rate included at that time in the ECAC.

HECO Response:

In the HECO Companies' response to PUC-IR-32, in the Feed-In Tariff docket (Docket No. 2008-0273), the Companies stated on page 2:

> Perhaps oversimplifying the issue, as-available energy IPPs [Independent Power Producers] can be curtailed (or their output can be interrupted) due to:
>
> 1. System Problems
>
> a. Caused by specific as-available energy Facilities - failing to comply with power quality (or performance) standards
> b. Caused by intermittent energy in general - excessive frequency fluctuations
>
> 2. Grid Constraints
>
> a. E.g., the line through which the IPP is interconnected to the grid is de-energized for service
> b. E.g., the line through which the IPP is interconnected to the grid incurs a forced outage
>
> 3. Excess Energy Situations
>
> In the case of (3) and perhaps 1(b), curtailment generally is implemented, by contract, in reverse chronological order...

Curtailment for excess energy occurs when the total net output of the committed generating units (i.e., the generating units connected to the system and in operation) exceeds the system load. (Certain small generators, such as net-metered PV systems, where outputs are not subject to curtailment control, in effect, reduce the system load served by the generating system.)

Before curtailing the outputs of as-available energy generation units, cycling and peaking units are taken off-line (unless they are required to maintain spinning reserve or regulatory reserve, or cannot be returned to operation in time to serve an expected increase in load), and baseload units are backed down to their minimum output levels (which are determined based on the characteristics and status of the units, or by PPA) except for the required amount of downward operating reserve.

Baseloaded units are those that for operational and reliability reasons are not cycled off-line (except for infrequent, scheduled overhauls). Baseloaded units operate "24/7" and can be "turned down" to their minimum load levels (subject to the need to maintain a minimum amount of downward operating reserve, as explained below) in order for the system to accept energy from as-available energy resources.

Curtailments for excess energy for the HELCO and Maui Division generally occur during system light loading periods, but can be expected to occur more often in the future, as more as-available and non-dispatchable renewable energy resources are added to the systems. As noted in the Companies' response to HDA/HECO-IR-1 in the Feed-In Tariff docket (Docket No. 2008-0273), on page 2:

> ... On both the MECO and HELCO grids some curtailment of existing as available resources is occurring, primarily during the low load periods at night pursuant to provisions in their PPA's [Purchase Power Agreements] which in most circumstances follow a chronological priority status relative to the date of PUC approval of the project. As new amounts of non firm energy resources are added to the respective systems, the occurrence of curtailment might be expected to extend into other portions of the day. Thus any new resource that is non firm that would be capable of producing energy in this time frame can expect to experience more curtailment than existing resources. At present non firm resources on the HECO grid are not experiencing curtailment. However, that is expected to change in the future as additional non firm resources are introduced to the system. Another factor that could impact future occurrences of curtailment would be the reduction of load served by the utility system. The need by the

utility to continue operation of certain firm generating resources that provide grid support could displace the increment of load that the newer FIT [Feed-In Tariff] resources would try to serve.

This information request asks for each (all) instance of renewable generation curtailment by the HECO Companies without defining a time period. It would be a tremendous task to compile all the data for all IPPs. Given the resources required and the time constraints, the Companies are providing some current curtailment incidents for two IPPs (Kaheawa wind farm on Maui and Tawhiri Power on the island of Hawaii) for this response.

The HECO system currently does not have substantial amounts of as-available energy, but substantial amounts are expected to be added pursuant to projects that are currently in development. The amount of future curtailment due to excess energy conditions will depend on factors such as the magnitude of system minimum loads, the amount of "must-run" generation (which is being evaluated in on-going "Big Wind" studies), the amount of scheduled renewable energy on the system (from waste-to-energy, OTEC or biomass facilities), and the characteristics of the as-available energy added to the system.

The following chart shows the recent system minimum load levels:

Table 1: HECO System Peaks and Minimum (Net MW)

Year	System Peak	System Minimum
2004	1281	541
2005	1230	530
2006	1266	547
2007	1216	498
2008	1186	551

The minimum system load varies from night to night, depending on factors such as the time of year, the day of the week and the weather. In 2004 (the year of the highest system peak), the minimum system load ranged from a low of 541 MW net on March 19, 2004 to a high of 715 MW net on August 17, 2004. In 2008, the minimum system load ranged from a low of 551 MW net on January 30, 2008 to a high of 701 MW net on July 1, 2008 (Note this excludes December 26 and December 27, 2008 information due to an island-wide outage).

The amount of time at which the system load was at or below a given level can be shown through a load duration curve. For example, the minimum system load tends to occur during only one hour out of 8,760 for a non-leap year.

With respect to the minimum outputs of the "must run" HECO generation, if HECO units K1-K6 and W7 & W8 were "turned down" to their minimum load levels, and Kalaeloa, AES and HPower were "turned down" to their contract minimums, the output of the baseload generation would be 470MW. (In any given year, however, these baseloaded units are taken out of service for significant periods of time to allow for scheduled maintenance of the units. In 2007 and 2008, one or more of the baseloaded units was out of service for 13 weeks out of the 52 weeks in the year.)

As noted above, generating units that are providing frequency regulation will not be turned down to their absolute minimum levels. These generating units need to operate at output levels that are somewhat higher than these minimum levels to be able to reduce output should the system experience a loss of load. The required amount of downward operating reserve generally is the amount of system load that could be lost in the event of a circuit trip. The most probable loss of load case for HECO occurs with an outage of a 46kV circuit. (More severe cases of load loss could occur with the loss of major 138kV circuits; however these situations are less likely and typically occur during conditions such as high winds, storms or hurricanes.) Loss of one 46kV circuit could result in a loss of approximately 20-35MW.

1. As stated in the Companies' response to HDA/HECO-IR-1 in the Feed-In Tariff docket (Docket No. 2008-0273), curtailment of as-available renewable energy occurs at HELCO and MECO (Maui Division). The system operator performs curtailments of renewable energy as a necessary measure for reliable operation of the power system. In some cases, curtailments are employed to reduce power at a certain location on the system to manage power flows on the grid, or to address a particular safety concern or power system problem. However, the large majority of curtailments are performed by the system operator in order to balance the power system supply with the power system demand during periods of excess energy production. Prior to curtailment for excess energy, HELCO and MECO system operators operate only units which must run, i.e., only the baseload units are run and the cycling and peaking units are turned off. The output of the baseload units is reduced to their minimum level, plus an amount for the minimum down regulating reserves. Curtailments due to excess energy are made according to a curtailment priority order.

   Curtailments due to excess energy occur very frequently during periods of high variable generation production (wind, run-of-river hydro). For HELCO and MECO, a record is maintained of the approximate time of curtailment of variable generation resources and the units remaining in service. For MECO, the table below provides an example of the dates and times that the output from the Kaheawa windfarm was curtailed for the first half of June 2009.

<u>Kaheawa Windfarm Curtailments</u>

Date of Curtailment	Time of Curtailment (MECO – Maui Division)

6/12/2009	Curtailment started at 0138 and ended at 0451 (MECO briefly stopped curtailing during this period when the wind died off, but then subsequently needed to curtail again when the wind picked up.)
6/06/2009	Curtailment started at 0220 and ended at 0559
6/05/2009	Curtailment started at 0206 and ended at 0515

For HELCO, an example of these records for the month of April 2009 for Tawhiri Power LLC[1] is provided in Attachment 1 of this response, pages 1 to 2. Attachment 1, pages 3 to 7, is HELCO's Daily Curtailment Report, which shows the amount of energy generated from HELCO units and the amount of energy acquired from the IPPs during the curtailment periods for the month of April 2009.

A record of marginal heat rates is not maintained. A generating unit's heat rate (i.e., the amount of energy that it takes to produce a given amount of electricity) is measured in Btu's/kwh. The heat rates for steam, combustion turbine, or combined cycle generating units that combust fuel oil (or biofuel, or biomass) generally decrease as the outputs of the unit increase (at least until the units are at their optimal output levels). The relationship between the output and the heat rate generally is not linear, but can be fitted to a second degree polynomial equation (or heat rate curve). Fuel cost is a function of fuel price (per Btu) (which differs by type of fuel), delivered fuel cost, unit heat rates, and unit locations (which contribute to line losses).

The heat rate during periods of curtailment is almost always higher than the typical or target heat rate due to the fact that the must-run units are operated near minimum load (with

[1] Tawhiri Power LLC, is the only IPP where a monthly curtailment report in included in the contract provisions. Tawhiri Power LLC operates Pakini Nui windfarm, and the data are shown under "Kamaoa," the windfarm's original name, in the HELCO Daily Curtailment Report included in Attachment 1.

consideration for reserves). Heat rates are significantly higher (less efficient) at lower loads for all generating units obtaining power from combustion and increase in efficiency with higher output according to the heat rate curve.

2. The last unit not dispatched and its marginal heat rate are not recorded. However, for present operating conditions at HELCO, when all dispatchable units are available, the last displaced unit (i.e., the last unit cycled offline to accommodate variable renewable generation) is typically a combined cycle gas turbine (either a combustion turbine that is a component of the Hamakua Energy Partners ("HEP") combined cycle facility, or in the future, a combustion turbine that is a component of the Keahole combined cycle facility) as HEP is taken to single train combined cycle configuration unless there is insufficient turnaround time. As with all conventional units, the heat rate is described as a second degree polynomial function dependent on the MW output of the units. The heat rate of the combined cycle units is the most fuel efficient of all units on the HELCO system, ranging from 12,000 MBtu/kWh at the low end of dispatchable range to approximately 8,000 MBtu/kWh at the high end of the dispatchable range (in two combustion turbine combined cycle configuration). The cost of these combined cycle facilities, at times, are the lowest on the system, or it may be that the steam units are more cost effective as they burn a different, less expensive fuel and thus the relative costs are dependent upon the price differential.

   For MECO (Maui Division), the situation is similar to that of HELCO. MECO has two combined cycle units, which are the most efficient on the system. Typically, energy from these units is the last to be displaced just prior to curtailment of wind energy. At this point, the cycling units (such as Kahului Units 1 and 3 and the diesel engines) have already been turned off and the other baseload units (such as Kahului 3 and 4) have been backed down to their minimum loads.

3. The target heat rates, their sources and their effective dates for each utility are provided in the table below. The target sales heat rates are reset and become effective upon the Commission's issuance of a final Decision and Order ("D&O") in a test year rate case. Final D&Os are pending for the HECO's 2007 test year rate case (Docket No. 2006-0386), HELCO's 2006 test year rate case (Docket No. 05-0315), and MECO's 2007 test year rate case (Docket No. 2006-0387).

	Target Sales Heat Rate, Btu/kWh-sales	Source	Effective Date
HECO	11,140	Test Year 2005 Rate Case (Docket No. 04-0113)	June 20, 2008
HELCO	14,629	Test Year 2000 Rate Case (Docket No. 99-0207)	February 15, 2001
MECO			
Maui Division	11,032	Test Year 1999 Rate Case (Docket No. 97-0346)	April 15, 1999
Lanai Division	10,678	Test Year 1999 Rate Case (Docket No. 97-0346)	April 15, 1999
Molokai Division	10,522	Test Year 1999 Rate Case (Docket No. 97-0346)	April 15, 1999

Hawaii Electric Light Company, Inc. • PO Box 1027 • Hilo, HI 96721-1027

May 27, 2009

VIA EMAIL TRANSMISSION AND U.S. MAIL

Mr. Anthony B. Pace
Managing Member
Tawhiri Power LLC
551 Pilgrim Drive, Suite D
Foster City, California 94404

Re: Pakini Nui Curtailment for April 2009

Dear Mr. Pace:

In accordance with Restated and Amended Contract (RAC) Appendix B-2, please find below dates and times HELCO curtailed Pakini Nui wind farm during the month of April 2009. Enclosed for your review is a log sheet for periods when it became necessary to curtail the output of your wind turbines due to excess as-available energy.

Date	Start Time	End Time	Reason for Curtailment
04/01/09	00:00	05:30	Excess as-available energy production.
04/02/09	00:10	05:19	Excess as-available energy production.
04/03/09	00:08	05:10	Excess as-available energy production.
04/04/09	00:27	06:22	Excess as-available energy production.
04/05/09	00:36	05:23	Excess as-available energy production.
04/05/09	23:51	05:03	Excess as-available energy production.
04/07/09	01:54	04:24	Excess as-available energy production.
04/09/09	00:46	02:45	Excess as-available energy production.
04/09/09	03:05	04:20	Excess as-available energy production.
04/09/09	14:09	14:29	Temporary reduction in energy was required to close 8600 line to complete South transmission line.
04/10/09	01:17	04:55	Excess as-available energy production.
04/11/09	01:43	04:35	Excess as-available energy production.
04/12/09	01:56	05:30	Excess as-available energy production.
04/12/09	23:01	05:17	Excess as-available energy production.
04/14/09	00:12	05:02	Excess as-available energy production.
04/14/09	08:50	11:10	High Wind Curtailment at Tawhiri's Request
04/15/09	00:03	04:59	Excess as-available energy production.
04/16/09	00:27	04:54	Excess as-available energy production.
04/17/09	00:55	04:22	Excess as-available energy production.

Please let us know if you have any questions.

Sincerely,

Sharon Hirai

Sharon Hirai
Power Purchase Contracts Administrator

Cc via email: Steven Pace (Tawhiri Power)
Lisa Dangelmaier (HELCO)
Michael Bradley (HELCO)
Norman Verbanic (HELCO)

HELCO DAILY CURTAILMENT REPORT
Wednesday, April 01, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
00:00	105.35	0.00	24.03	7.84	0.00	4.13	0.00	0.03	7.64	11.26	19.78	21.60	9.02
01:00	97.03	0.00	24.74	7.76	0.00	4.12	0.00	0.03	7.56	11.26	10.24	21.47	9.82
02:00	90.82	0.00	23.34	8.10	0.00	4.11	0.00	0.04	3.53	11.23	6.79	21.24	12.37
03:00	90.28	0.00	23.51	8.11	0.00	4.10	0.00	0.04	3.53	11.30	6.78	21.46	11.42
04:00	93.00	0.00	24.32	8.22	0.00	4.10	0.00	0.05	3.53	11.27	6.79	21.60	13.14
05:00	102.57	0.00	24.24	8.34	0.00	4.08	0.00	0.05	7.64	11.26	11.10	21.72	14.15

HELCO DAILY CURTAILMENT REPORT
Thursday, April 02, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
00:00	104.73	0.00	24.06	8.06	0.00	4.07	0.00	0.02	4.22	11.26	19.78	21.77	11.45
01:00	96.06	0.00	25.92	8.45	0.00	4.09	0.00	0.02	6.19	11.26	7.73	21.79	10.68
02:00	92.13	0.00	23.73	7.93	0.00	4.08	0.00	0.04	5.30	11.27	6.79	21.72	11.23
03:00	90.81	0.00	23.74	8.00	0.00	4.08	0.00	0.04	2.70	11.22	6.87	21.84	12.25
04:00	91.46	0.00	24.19	8.30	0.00	4.09	0.00	0.03	2.80	11.29	6.78	21.83	12.25
05:00	100.41	0.00	24.21	8.15	0.00	4.10	0.00	0.02	5.98	11.29	12.72	21.67	12.25

HELCO DAILY CURTAILMENT REPORT
Friday, April 03, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
00:00	107.12	0.00	26.41	8.07	0.00	4.07	0.00	0.04	5.73	11.24	19.79	22.02	9.75
01:00	99.72	0.00	24.66	7.95	0.00	4.11	0.00	0.00	7.27	11.26	12.67	22.02	9.75
02:00	92.32	0.00	23.74	8.25	0.00	4.11	0.00	0.00	3.91	11.27	6.78	22.37	11.97
03:00	91.28	0.00	23.37	7.95	0.00	4.08	0.00	0.02	1.95	11.30	6.81	22.23	13.54
04:00	92.11	0.00	23.88	8.26	0.00	4.10	0.00	0.03	1.92	11.20	6.81	22.11	13.69
05:00	99.47	0.00	24.17	8.21	0.00	4.10	0.00	0.02	1.92	11.27	13.61	21.86	14.28

HELCO DAILY CURTAILMENT REPORT
Saturday, April 04, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
00:00	108.03	0.00	29.83	10.44	0.00	4.10	0.00	0.03	4.68	11.19	15.19	22.09	10.37
01:00	98.16	0.00	23.14	10.51	0.00	4.10	0.00	0.04	5.04	11.26	6.82	22.18	15.08
02:00	93.45	0.00	23.07	10.58	0.00	4.10	0.00	0.03	0.00	11.21	6.75	22.21	15.48
03:00	91.64	0.00	25.26	10.34	0.00	4.07	0.00	0.01	0.00	11.23	4.35	22.23	14.22
04:00	92.93	0.00	27.84	10.58	0.00	4.08	0.00	0.04	2.03	11.19	4.95	22.18	9.94
05:00	98.97	0.00	28.38	10.55	0.00	4.10	0.00	0.04	5.90	11.25	6.44	22.34	9.97
06:00	109.80	0.00	29.80	10.77	0.00	4.08	0.00	0.05	7.84	11.23	13.25	22.23	10.52

HELCO DAILY CURTAILMENT REPORT
Sunday, April 05, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
01:00	97.29	0.00	31.75	11.06	0.00	4.08	0.00	0.03	7.61	11.23	8.81	22.69	0.00
02:00	92.56	0.00	28.17	12.71	0.00	4.09	0.00	0.04	4.80	11.23	8.78	22.69	0.00
03:00	89.56	0.00	27.16	10.48	0.00	4.09	0.00	0.05	5.03	11.23	8.70	22.77	0.00
04:00	91.75	0.00	30.50	11.05	0.00	4.09	0.00	0.05	5.22	11.22	6.81	22.88	0.00
05:00	97.54	0.00	28.78	10.65	0.00	4.08	0.00	0.05	7.63	11.24	12.44	22.65	0.00

HELCO DAILY CURTAILMENT REPORT
Monday, April 06, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
00:00	101.78	0.00	18.60	10.57	0.00	4.05	0.00	0.00	7.62	11.24	16.95	22.63	10.06
01:00	94.65	0.00	16.50	10.34	0.00	4.08	0.00	0.00	5.74	11.28	12.65	22.63	11.48
02:00	90.73	0.00	19.02	10.56	0.00	4.08	0.00	0.00	6.25	11.23	6.76	22.74	10.06
03:00	90.10	0.00	18.39	9.68	0.00	4.07	0.00	0.02	6.78	11.22	4.64	22.65	12.62
04:00	93.05	0.00	19.99	10.93	0.00	4.08	0.00	0.02	7.39	11.23	3.99	22.58	12.80
05:00	101.71	0.00	19.91	10.50	0.00	4.08	0.00	0.03	6.17	11.23	15.92	19.89	13.97

HELCO DAILY CURTAILMENT REPORT
Tuesday, April 07, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
02:00	91.69	0.00	19.48	8.15	0.00	4.06	0.00	0.01	6.23	9.13	14.87	19.19	10.52
03:00	90.31	0.00	18.93	8.46	0.00	4.08	0.00	0.00	4.36	9.22	10.68	19.47	15.08
04:00	92.10	0.00	19.86	10.59	0.00	4.06	0.00	0.00	7.08	9.21	10.36	19.22	11.69

HELCO DAILY CURTAILMENT REPORT
Thursday, April 09, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
01:00	94.97	0.00	19.81	13.59	0.00	4.06	0.00	0.04	7.57	8.66	11.30	19.13	10.71
02:00	88.99	0.00	18.09	10.80	0.00	4.06	0.00	0.04	2.39	8.49	9.07	19.10	16.92
03:00	89.13	0.00	20.01	10.83	0.00	4.06	0.00	0.04	4.67	8.44	12.05	19.05	10.00
04:00	92.07	0.00	20.03	10.57	0.00	4.07	0.00	0.05	3.12	8.30	11.30	19.45	15.17

HELCO DAILY CURTAILMENT REPORT
Friday, April 10, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
01:00	95.96	0.00	19.84	10.52	0.00	4.05	0.00	0.05	3.95	7.43	18.53	19.19	12.37
02:00	91.62	0.00	18.26	10.56	0.00	4.04	0.00	0.04	4.36	7.21	12.64	19.17	15.17
03:00	90.40	0.00	18.01	10.48	0.00	4.06	0.00	0.05	5.01	7.18	12.67	19.19	13.72
04:00	91.49	0.00	18.82	10.80	0.00	4.06	0.00	0.02	3.62	7.01	12.67	18.99	15.48
05:00	99.85	0.00	19.99	10.51	0.00	4.05	0.00	0.05	7.29	6.98	18.50	19.15	13.29

HELCO DAILY CURTAILMENT REPORT
Saturday, April 11, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
02:00	87.10	0.00	20.01	10.18	0.00	4.06	0.00	0.00	0.00	7.21	14.38	19.47	11.82
03:00	86.95	0.00	19.94	10.18	0.00	4.04	0.00	0.00	0.00	7.12	15.18	19.63	10.83
04:00	89.24	0.00	19.95	10.51	0.00	4.04	0.00	0.00	0.00	6.93	15.15	19.59	13.05

HELCO DAILY CURTAILMENT REPORT
Sunday, April 12, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
02:00	91.17	0.00	20.03	11.54	0.00	4.01	0.00	0.00	0.00	8.35	17.24	19.33	10.65
03:00	88.19	0.00	19.98	11.56	0.00	4.05	0.00	0.00	0.21	8.81	10.78	19.66	13.11
04:00	89.47	0.00	19.97	11.90	0.00	4.05	0.00	0.00	0.07	8.91	11.68	19.64	13.23
05:00	94.83	0.00	23.61	11.86	0.00	4.05	0.00	0.00	0.03	8.94	11.99	19.56	14.77

HELCO DAILY CURTAILMENT REPORT
Monday, April 13, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
00:00	100.91	0.00	30.54	10.54	0.00	4.06	0.00	0.04	6.39	11.18	6.76	12.59	18.77
01:00	93.91	0.00	29.82	10.51	0.00	4.07	0.00	0.06	6.22	11.18	6.82	15.12	10.09
02:00	90.55	0.00	28.42	10.63	0.00	4.07	0.00	0.05	0.00	11.17	4.16	18.75	13.29
03:00	89.01	0.00	27.85	10.48	0.00	4.05	0.00	0.03	0.00	11.17	6.79	18.64	9.94
04:00	92.70	0.00	30.25	10.66	0.00	4.06	0.00	0.05	0.00	11.25	6.07	18.89	11.51
05:00	99.79	0.00	29.88	10.50	0.00	4.04	0.00	0.05	3.07	11.21	12.07	18.77	10.18

HELCO DAILY CURTAILMENT REPORT
Tuesday, April 14, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
01:00	96.64	0.00	28.77	10.57	0.00	4.04	0.00	0.06	7.54	11.16	10.87	13.66	9.94
02:00	92.32	0.00	28.00	10.50	0.00	4.07	0.00	0.07	7.60	11.19	6.81	13.59	10.46
03:00	90.72	0.00	27.29	10.55	0.00	4.08	0.00	0.06	7.08	11.23	6.81	13.68	9.91
04:00	92.18	0.00	28.45	10.59	0.00	4.05	0.00	0.06	7.27	11.18	6.81	13.61	10.12
05:00	101.08	0.00	29.55	10.59	0.00	4.05	0.00	0.05	6.41	11.21	15.62	13.61	9.97

HELCO DAILY CURTAILMENT REPORT
Wednesday, April 15, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
00:00	101.34	0.00	27.14	10.32	0.00	4.06	0.00	0.06	7.63	11.21	18.62	12.42	9.85
01:00	94.09	0.00	28.83	10.49	0.00	4.07	0.00	0.06	6.80	11.26	10.01	12.45	10.09
02:00	90.05	0.00	28.59	10.64	0.00	4.09	0.00	0.06	6.68	11.21	5.62	12.40	10.74
03:00	89.71	0.00	28.37	10.52	0.00	4.07	0.00	0.03	6.06	11.25	6.76	12.40	10.28
04:00	92.35	0.00	30.66	10.77	0.00	4.07	0.00	0.04	1.68	11.20	10.15	12.43	11.32
05:00	101.40	0.00	30.11	10.80	0.00	4.07	0.00	0.05	2.31	11.20	18.62	12.43	11.78

HELCO DAILY CURTAILMENT REPORT
Thursday, April 16, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
01:00	94.52	0.00	28.26	10.70	0.00	4.07	0.00	0.00	0.12	10.73	11.61	18.80	10.22
02:00	90.99	0.00	27.74	10.54	0.00	4.05	0.00	0.00	3.67	10.64	3.47	19.05	11.82
03:00	89.85	0.00	28.06	10.66	0.00	4.06	0.00	0.00	0.70	10.53	4.62	18.96	12.37
04:00	94.18	0.00	29.90	10.55	0.00	4.05	0.00	0.00	0.00	10.43	10.21	18.87	10.15
05:00	102.15	0.00	30.02	10.49	0.00	4.06	0.00	0.00	2.16	10.37	14.33	18.89	11.82

HELCO DAILY CURTAILMENT REPORT
Friday, April 17, 2009

	SYS LOAD	HELCO GENERATION							IPP GENERATION				
HOUR	MW	SHIPMAN	HILL	PUNA	CT'S	HYDROS	DIESELS	LALAMILO	HRD	WAILUKU	KAMAOA	PGV	HEP
01:00	94.56	0.00	26.68	10.83	0.00	4.05	0.00	0.00	0.00	9.61	16.47	16.72	10.22
02:00	90.94	0.00	27.14	10.54	0.00	4.06	0.00	0.00	0.00	9.40	12.88	17.08	9.85
03:00	89.23	0.00	27.65	10.69	0.00	4.05	0.00	0.00	0.00	9.19	10.95	16.60	10.06
04:00	92.27	0.00	29.85	10.58	0.00	4.05	0.00	0.00	0.00	8.99	9.87	17.02	11.88

PUC-IR-45

Please explain why reduced demand should increase the utility's projected heat rate. Is this relationship a generalization or will it occur in all cases of reduced demand? In what circumstances, if any, could a decrease in demand lead to a decrease in the heat rate (e.g., decrease occurs during peak hours when the displaced fossil generation has a heat rate inferior to the target heat rate)?

HECO Response:

A generalization that a utility's heat rate should or will increase when demand is reduced cannot necessarily be made. Many factors influence whether a utility's heat rate will increase or decrease when demand (i.e., overall sales volume) decreases. These factors include, but are not limited to: (1) the utility's generation mix, (2) the level of demand relative to the total available capacity on the system, (3) the performance characteristics of the individual units on the utility's grid, (4) the extent to which a decline in sales affects the relative proportion of utility-produced energy and Independent Power Producer-produced energy, (5) the hourly demand profile, and (6) the time of day that sales are reduced.

In the case of HECO, it was determined in its 2009 test year rate case (Docket No. 2008-0083) that under the test year projections, particularly the sales volume of 7,657.8 GWh in its direct testimony (HECO-402, line 1), the total central-station net heat rate would be 10,635 Btu/kWh-net (HECO-403, line 14). In its Rate Case Update, filed on November 26, 2008, HECO indicated that based on an updated test year sales volume of 7,484.7 GWh (a reduction of 173.1 GWh or 2.3%), the total central-station net heat rate would be 10,618 Btu/kWh-net, a reduction in the net heat rate of 17 Btu/kWh (HECO Test Year 2009 Rate Case Update, HECO T-4, pages 1 and 2). In this particular case for HECO, a reduction in sales volume resulted in a reduction in the central-station heat rate. The reduction in heat rate occurred because the higher heat rate (i.e., lower efficiency) cycling and peaking units operated for fewer hours.

The effect of lower sales volume on heat rate for the HELCO and Maui Division may be different from that which occurs on the HECO system. The HECO generating units consist of 14 steam units (ranging in size from 46 MW-net to 135 MW-net) and two combustion turbines (rated at approximately 50 MW each). In contrast, HELCO's generating system currently consists of five steam units (ranging in size from 7 MW-net to 20 MW-net), five simple cycle combustion turbines (ranging in size from about 12 MW-net to about 22 MW-net), and 14 diesel engines (ranging in size from 1 MW-net to about 2.8 MW-net). In general, the diesel engines serve as peaking units, the combustion turbines serve as mid-range cycling units, and the steam units serve as baseload units. Also, in general, the steam units and combustion turbines have progressively higher heat rates as their output decreases, while the diesel engines have heat rates that are relatively constant over its load range. In the case of HELCO, when sales decline, the generating units, particularly the combustion turbines and steam units, will operate at lower levels, where their heat rates are higher. Therefore, for HELCO, the overall system heat rate may increase when there is a decrease in sales.

Maui Division's generating system consists of four steam units (ranging in size from about 6 MW-net to about 12 MW-net), 15 diesel engines (ranging in size from 2.5 MW-net to about 12 MW-net) and two combined cycle units (each with a total rating of about 57 MW-net). Two of the steam units serve primarily as cycling units and the other two serve as baseload units. The large diesel engines serve as mid-range cycling units while the other diesel engines serve primarily as peaking units. In general, the combined cycle units and the steam units have progressively higher heat rates as their output decreases, while the diesel engines have heat rates that are relatively constant over its load range. In the case of the Maui Division, when sales decline, the generating units, particularly the combined cycle units, will operate at lower levels, where their heat rates are higher. Therefore, for Maui Division, the overall system heat rate may increase when there is a decrease in sales.

PUC-IR-46

Provide a full, objective evaluation of HDA's proposed "revenue per customer" approach. Your evaluation should take into account, but not be limited to, the following criteria:

a) Will it facilitate cost-effective reduction in the consumption of fossil fuel-based electricity?
b) Will it maintain the utility's ability to attract capital, on reasonable terms, in amounts sufficient to fulfill the utility's statutory obligations?
c) Will it reduce the total cost of serving the utility's customers?
d) Will it produce just and reasonable rates?
e) Will it improve quality of service?
f) Will it be easy for the utility to administer?
g) Will it be easy for the Commission to ensure that the approach works as advertised?
h) Will its results be transparent?

<u>HECO Response:</u>

The RPC methodology proposed by HDA does not achieve the objectives of the RAM:

1) to partially recover between rate cases the increases in costs that are fixed in the short term due to inflation, changes in utility output, and investments in utility infrastructure; and

2) to maintain the financial health of the company

HDA provides no evidence that supports the assumption underlying the proposed RPC methodology that the utility's fixed costs are related to its number of customers. In fact, as shown in the attached exhibit, the utility's costs are not related to its number of customers. Therefore, if the change in the number of customers is not a proxy for the changes in utility fixed costs, the RPC methodology cannot maintain the utility's financial health.

On the other hand, the RAM mechanism jointly proposed by HECO Companies and the Consumer Advocate is a proxy for the pattern of the utilities' fixed costs. First, labor costs are escalated by cost increases that are reflected in the HECO Companies' union contract (and then modified by a productivity factor). Second, since input costs are affected by inflation, the

Consumer Advocate and HECO Companies have agreed that the GDPPI index should be applied to non-labor costs for the purposes of the RAM calculation.

a. No. HDA's proposed RPC methodology is only concerned with the growth in fixed costs between rate cases and expressly removes test year fuel and purchased power expenses from the determination of RPC amounts. See HDA's response to PUC-IR-47, Step 1, page 4 of 5. As the proposed RPC methodology does not track the utilities' fixed cost as well as the RAM mechanism jointly proposed by HECO Companies and the Consumer Advocate, the adoption of the RPC methodology would have an adverse effect on the procurement of more expensive non fossil fuel-based facilities and electricity.

b. As stated above, the RPC does not serve as a proxy for changes in fixed costs, therefore revenues under the RPC would not improve the Companies' financial position. Whether or not the utilities would be able to maintain their current ability to attract capital, on reasonable terms, in amounts sufficient to fulfill the utility's statutory obligations results from the utility's operating environment in totality; therefore, the impact of the RPC is difficult to isolate.

c. No. The total cost of serving the utility's customers will be established in a general rate case proceeding where the utility's expenses and revenue requirements will be determined to be just and reasonable by the Commission. The RPC methodology will serve to limit the utilities' revenue growth in non rate-case years which may result in more frequent rate cases.

d. No. The determination of just and reasonable rates is established by the Commission in a general rate case. The RPC methodology has no bearing on the determination of rate case revenue requirements and resulting rate design.

e. It's unclear if the RPC methodology will improve the quality of service. Certainly, if the RPC methodology results in a revenue adjustment that is lower than the RAM proposal jointly agreed to by the Consumer Advocate and HECO Companies, then it is unlikely that the RPC method would improve the quality of service more than it would under the joint RAM proposal. That is because with the lower likelihood of maintaining financial health through the RPC methodology relative to the jointly proposed RAM method, the Companies are less likely to have the financial capacity to pursue improvements to the quality of service.

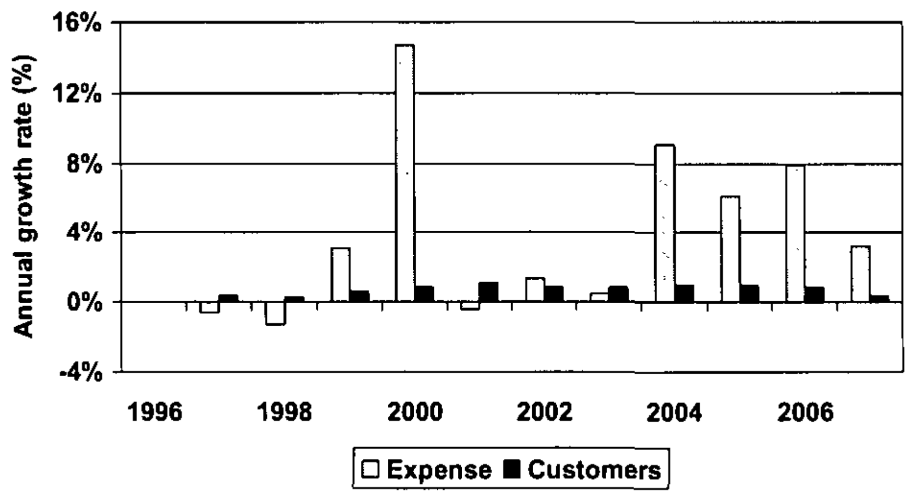
f. There is a relative simplicity in establishing an index which tracks the change in number of customers from year to year. However, establishing such an index would require the Companies (and the Consumer Advocate and Commission) to identify new processes and procedures for tracking, not only new customers, but the movement of customers between classes. The amounts of effort to achieve, maintain, and verify such a tracking mechanism is unknown at this time. However, contrast this effort with a 'revenue requirements' RAM methodology, jointly proposed by the Companies and the Consumer Advocate, where the processes, data elements, and inflation indices, are know and easily verifiable to all parties involved, and serve as a basis for inputs into a general rate case, the Companies contend that the HECO Companies and the Consumer Advocate's proposed RAM mechanism is preferable.

g. The RPC methodology is a common attrition methodology employed by natural gas local distribution utilities (LDCs) where a large portion of fixed costs are tied directly to, and vary with the number of customers. The Companies' fixed costs are not related to the number of customers as shown in Attachment 1. Thus, as a means to ensure that the

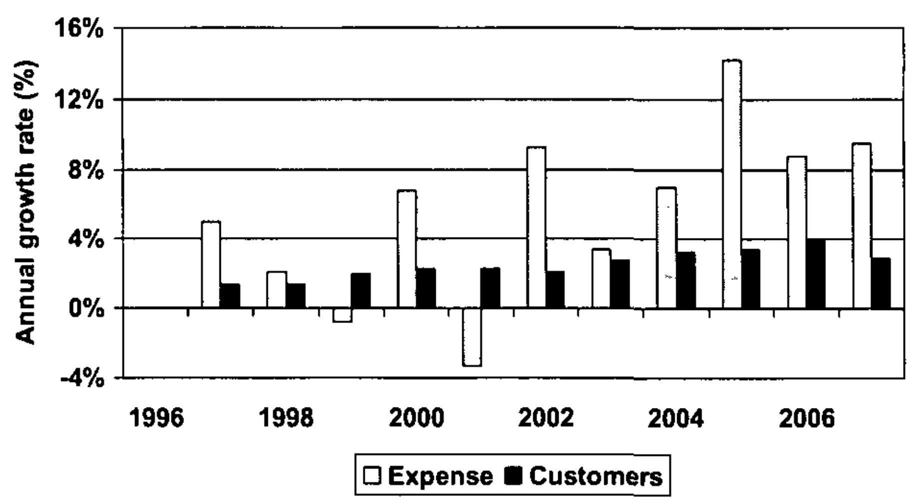
Companies remain financially healthy between rate cases, the RPC methodology will not perform as well as the RAM methodology that is jointly proposed by the Companies and the Consumer Advocate.

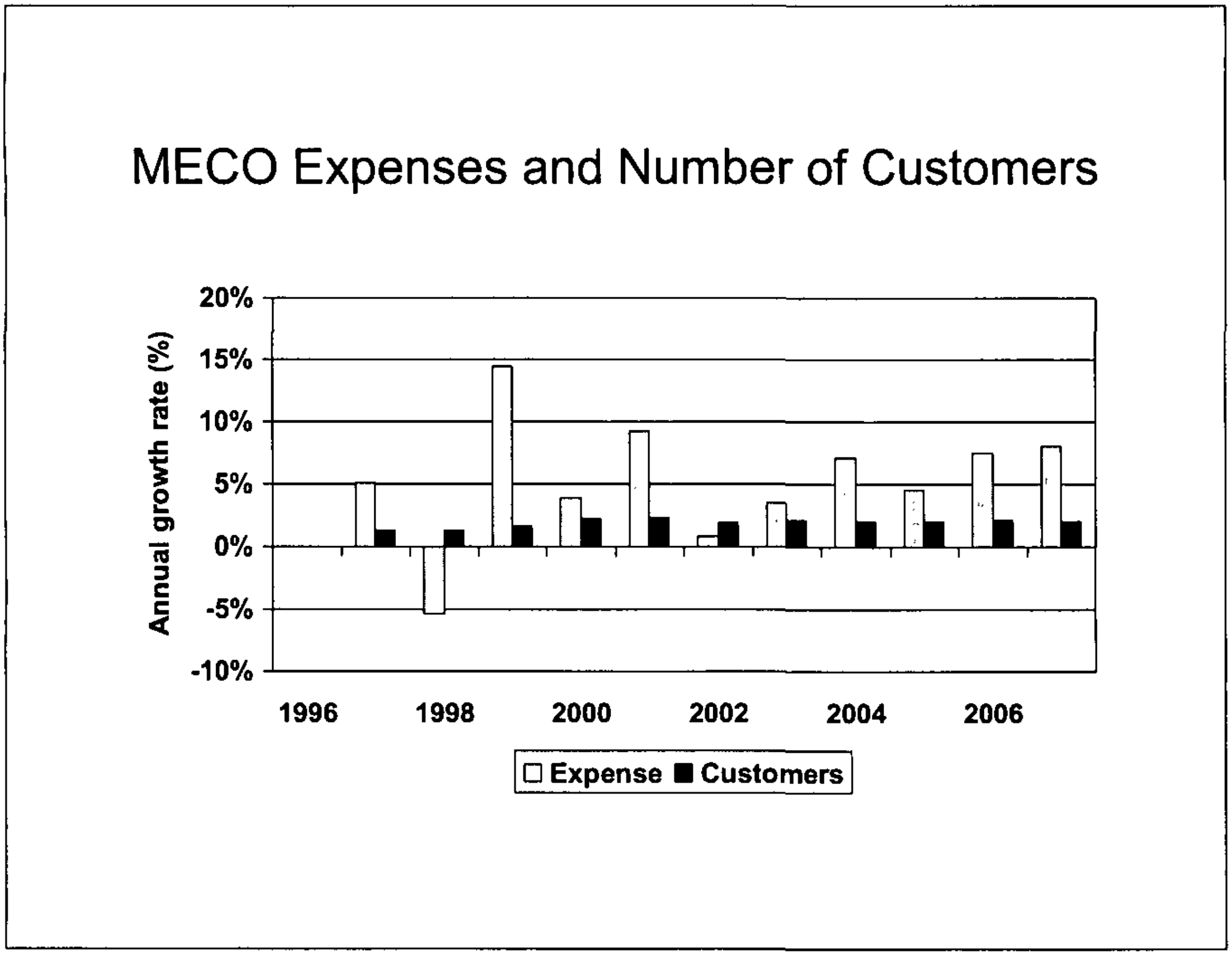
h. The Companies foresee both RPC and the RAM methodology, jointly proposed by the Companies and the Consumer Advocate, as being equally transparent.

HECO Expenses and Number of Customers



HELCO Expenses and Number of Customers




MECO Expenses and Number of Customers
20%
15%
10%
5%
0%
-5%
-10%
Annual growth rate (%)
1996
1998
2000
2002
2004
2006
Expense
Customers

PUC-IR-49

The current ECAC uses the 2005 energy mix to calculate the ECAC. Does the use of 2005 proportions rather than actual proportions cause the utility to charge more or less than its actual costs when the actual mix is different from the 2005 mix? Does the use of set proportions rather than actual energy mix create a complete pass through? If not, why have you not discussed the proportional allocation as well as the heat rate adjustment? If there have been differences between actual costs experienced and revenues charged to the customers because of the use of the 2005 energy mix, please provide the monetary difference for each year from 2004 through 2008.

HECO Response:

The HECO Companies use the Energy Cost Adjustment Clause (ECAC) to adjust customer bills for differences between actual fuel and purchased energy costs and the fuel and purchased energy costs that are embedded in base rates in the Companies' last respective rate case with a final decision and order issued. These differences between actual fuel and purchased energy costs and costs embedded in base rates arise from differences in both energy prices and the mix among resources. The costs of fuel and purchased energy in base rates reflect the most recent approved (i.e. with a final decision and order) test year proportions (mix percentages) and energy prices. For HECO, the approved 2005 test year energy mix and prices has been reflected in the ECAC base since June 20, 2008; prior to that date, the HECO ECAC base reflected the 1995 test year energy mix and prices. For HELCO, the ECAC base reflects the 2000 test year energy mix and prices. For MECO, the ECAC base reflects the 1999 test year energy mix and prices. (See also table in PUC-IR-43 response, page 1.)

The ECAC base energy mix and prices are reset upon implementation of a final decision and order in each HECO Companies' respective next rate case. The ECAC subtracts those base costs from actual costs that result from actual proportions (mix percentages) and actual prices in the ECAC reconciliation. Therefore, both the 2005 test year energy mix and the actual mix are used in HECO's ECAC. When used to adjust customer bills, the difference between base and actual costs, along with the elimination of the fixed heat rate proposed by Haiku Design Analysis ("HDA"), creates a complete pass through of fuel and purchased energy expenses. Under the currently approved ECAC mechanism, pass through of fuel and purchased energy expenses is limited by the fixed heat rate that is approved in a rate case. When the utility achieves a heat rate that is higher (worse or less efficient) than the fixed heat rate, it is unable to recover from customers the actual fuel costs represented by the heat rate difference. When the utility achieves a heat rate that is lower (better or more efficient) than the fixed heat rate, it is able to retain the difference between the actual fuel costs and the higher fuel costs based on the fixed heat rate.

See the response to PUC-IR-43 for the differences for 2004 through 2008 related to heat rate performance.